CLAIMS:

1. An enclosure for hermetically sealing a microsystem, wherein the microsystem is located on a substrate, the enclosure comprising:

a single-piece cover having walls and a top; and

a solder preform interposed between the single-piece cover and the substrate in order to facilitate creating a hermetically sealed cavity defined by the single-piece cover and the substrate for enclosing the microsystem.

2. The enclosure as set forth in claim 1, wherein the single-piece cover includes a layer of gold-plating over a layer of nickel-plating.

3. The enclosure as set forth in claim 2, wherein the layer of gold-plating is approximately at least 0.000075inches in thickness, and the layer of nickel-plating is approximately at least 0.000050inches in thickness.

4. The enclosure as set forth in claim 1, wherein the solder preform has a thickness of approximately 0.003inches.

5. The enclosure as set forth in claim 1, wherein the solder preform has a composition of approximately 80% gold and 20% tin.

6. An enclosure for hermetically sealing a microsystem, the enclosure comprising:

a substrate whereupon is located the microsystem;

a single-piece cover having walls and a top; and

a single solder preform interposed directly between the single-piece cover and the substrate in order to facilitate creating a hermetically sealed cavity defined by the single-piece cover and the substrate for enclosing the microsystem.

7. The enclosure as set forth in claim 6, wherein the single-piece cover includes a layer of gold-plating over a layer of nickel-plating.

8. The enclosure as set forth in claim 7, wherein the layer of gold-plating is approximately at least 0.000075inches in thickness, and the layer of nickel-plating is approximately at least 0.000050inches in thickness.

9. The enclosure as set forth in claim 6, wherein the solder preform has a thickness of approximately 0.003inches.

10. The enclosure as set forth in claim 6, wherein the solder preform has a composition of approximately 80% gold and 20% tin.

11. An enclosure for hermetically sealing a microsystem, the enclosure comprising:

a substrate whereupon is located the microsystem;

a single-piece cover having walls and a top, wherein the single-piece cover includes a layer of gold-plating that is approximately 0.000075inches in thickness over a layer of nickel-plating that is approximately 0.000050inches in thickness; and

a single solder preform having a thickness of approximately 0.003inches and a composition of approximately 80% gold and 20% tin, wherein the solder preform is interposed directly between the single-piece cover and the substrate in order to facilitate creating a hermetically sealed cavity defined by the single-piece cover and the substrate for enclosing the microsystem.

12. A method of hermetically sealing a microsystem, wherein the microsystem is located on a substrate, the method comprising the steps of:

(a) providing a single-piece cover having walls and a top;

(b) interposing a single solder preform directly between the single-piece cover and the substrate;

(c) positioning the single-piece cover and the single solder preform over the microsystem; and

(d) heating the substrate, the single-piece cover, and the single solder preform in a single step to create a hermetically sealed cavity defined by the single-piece cover and the substrate for enclosing the microsystem.

13. The method as set forth in claim 12, wherein the single-piece cover includes a layer of gold-plating over a layer of nickel-plating.

14. The method as set forth in claim 13, wherein the layer of gold-plating is approximately at least 0.000075inches in thickness, and the layer of nickel-plating is approximately at least 0.000050inches in thickness.

15. The method as set forth in claim 12, wherein the solder preform has a thickness of approximately 0.003inches.

16. The method as set forth in claim 12, wherein the solder preform has a composition of approximately 80% gold and 20% tin.

17. A method of hermetically sealing a microsystem, the method comprising the steps of:

(a) providing a substrate whereupon is located the microsystem;

(b) providing a single-piece cover having walls and a top;

(c) interposing a single solder preform directly between the single-piece cover and the substrate;

(d) positioning the single-piece cover and the single solder preform over the microsystem; and

(e) heating the substrate, the single-piece cover, and the single solder preform in a single step to create a hermetically sealed cavity defined by the single-piece cover and the substrate for enclosing the microsystem.

18. The method as set forth in claim 17, wherein the single-piece cover includes a layer of gold-plating over a layer of nickel-plating.

19. The method as set forth in claim 18, wherein the layer of gold-plating is approximately at least 0.000075inches in thickness, and the layer of nickel-plating is approximately at least 0.000050inches in thickness.

20. The method as set forth in claim 17, wherein the solder preform has a thickness of approximately 0.003inches.

21. The method as set forth in claim 17, wherein the solder preform has a composition of approximately 80% gold and 20% tin.

22. A method of hermetically sealing a microsystem, the method comprising the steps of:

(a) providing a substrate whereupon is located the microsystem;

(b) providing a single-piece cover having walls and a top, wherein the single-piece cover includes a layer of gold-plating that is approximately at least 0.000075inches in thickness over a layer of nickel-plating that is approximately at least 0.000050inches in thickness;

(c) interposing a single solder preform having a thickness of approximately 0.003inches and a composition of approximately 80% gold and 20% tin directly between the single-piece cover and the substrate;

(d) positioning the single-piece cover and the single solder preform over the microsystem; and

(e) heating the substrate, the single-piece cover, and the single solder preform in a single step to create a hermetically sealed cavity defined by the single-piece cover and the substrate for enclosing the microsystem.